

# THE TELEGRAPH INVENTION

## A Claim that It Was Due to Alfred Vail Rather Than to Morse.

### TERMS OF AN OLD AGREEMENT

#### A Quotation from Prof. Pope in Which Credit for the System in Use Is Given to Mr. Vail.

To the Editor of The New York Times:

The frequent mention at the present time, (in connection with the experiments being made in what is termed "wireless telegraphy,") of the "Morse code," "Morse alphabet," and "Morse dot-and-dash alphabet," by which is perpetuated the wrong and general impression that it is to Morse that the world is indebted for the alphabet and mechanism which is universally used, and has been since 1838, for the transmission of intelligence by means of the electric current, induces one to ask the aid of THE TIMES in disseminating through its columns the real truth in the matter.

The late Prof. Franklin L. Pope has thus written of Morse and his part in the invention:

"Morse applied to a certain structural organization already existing in the art, a particular mode of operation, viz., a numerical code of dots only, and this, together with the addition of a valuable, but non-essential, recording device, constituted his real invention. Alfred Vail subsequently applied to the same basic structural organization another and essentially different code, and in so doing, made an original and independent invention, and this last, under the law of the survival of the fittest, has become the universal telegraph of to-day, while its predecessor has come to possess little more than a historical interest."

#### PRaise for Prof. Pope.

That the reader may know of the value to attach to the statements of Prof. Pope I will quote the remarks of one of his fellow-scientists: "In literary work Mr. Pope was easily first among North American writers in electrical and associated subjects, and united the various talents of graphic expression, pleasing diction, and accuracy of statement with the natural and cultivated powers of observation and insight to which reference has before been made."

Morse "conceived" an idea of a telegraph by means of which intelligence could be electrically transmitted in September, 1832, but it was not until Sept. 2, 1837, that he obtained his first successful results. At this trial was present Alfred Vail, the son of Judge Stephen Vail, the proprietor of the Speedwell Iron Works at Morristown, N. J., at the time probably the foremost concern in the country, to which place he and Morse went a few weeks later as a result of the agreement entered into by them on the 23d of the same month.

#### A CONTRACT MORSE MADE.

That contract, which has never before been placed before the world, and to accomplish which I know of no better medium than the columns of the widely read TIMES, is couched in the following terms:

"New York, September 23, 1837. "Articles of Agreement made this 23d Day of September, in the year of our Lord one thousand eight hundred and thirty-seven, between the Messrs. Samuel F. B. Morse, of the University of the City of New York, in the City and County and State of New York, of the first part, and Alfred Vail of Speedwell, (Morristown,) in the Township and County of Morris, and State of New Jersey, of the second part, as follows, to-wit, viz.:

"Whereas, the said Samuel F. B. Morse, of the first part, has invented a new machine for the transmission of intelligence, called the 'Electromagnetic Telegraph,' and to secure to himself the benefits of his invention, he is preparing to take out letters-patent in the United States, and he hereby associates himself with the party of the second part in this undertaking, upon the following terms and conditions:

"First.—The party of the second part covenants to construct and to put into successful operation, at his own proper cost and expense, one of the telegraphs of the plan and invention of the party of the first part, and to exhibit its full power and value before a committee of the Congress of the United States, on or before the 1st of January, 1838.

"Second.—All expenses, which in the judgment of both parties shall necessarily be incident to the final completion and perfection of the said plan of telegraphic communication, shall be defrayed by the said Vail, of the second part, who also agrees to devote his time and personal services faithfully to this object, without charge. The expenses of obtaining letters-patent in the United States are intended to be included as a part of the incidental expenses, as well as all machinery and apparatus which may be found to be necessary for testing, by actual and speedy experiment, the efficiency of the mode of transmitting intelligence.

"Third.—And it is hereby further agreed between the said parties of the first and second parts, that in case either of them shall make any new discoveries which will be applicable to said telegraph, or any new invention which will tend toward perfecting the same in any manner, he will, as soon as practicable, communicate the same to the other, and it shall be held as the property of each, in the same proportion as their respective rights in the whole, and the expenses of taking out letters-patent, for such new discovery or invention, if such letters-patent be materially thought to be necessary, shall be defrayed by each, in the same proportion as he holds of the whole, by these presents hereinafter mentioned.

"Fourth.—In consideration of the aforesaid payment of money, (mentioned in Article 2 of this agreement,) and such other aids as are promised by the said Vail, of the second part, the said Samuel F. B. Morse, of the first part, doth hereby assign, transfer, and convey to the said Alfred Vail of the second part, and to his heirs and assigns forever, one equal undivided one-fourth part of all his interests and rights, which he now holds, or which may accrue by means of said invention of the 'Electromagnetic Telegraph,' and by the proposed patent to be secured to him as aforesaid, so far as any benefits and advantages may arise therefrom.

"Fifth.—It is also agreed by the said Morse of the first part, that, provided that the said Vail, of the second part, will procure to be taken out letters-patent for this invention, in any or all of the foreign countries of the globe, he shall be entitled to one equal and undivided one-half of all of the benefits, profits, and advantages arising therefrom, and it is further agreed by said party of the second part, that the said letters-patent for the exclusive right to use such invention of the 'Electromagnetic Telegraph,' in France, England, Scotland, and Ireland, shall be taken out in any or all of these countries, with the least possible delay, and as soon as the models necessary for that purpose shall be sufficiently completed to test their efficiency, and that no unnecessary delay be incurred, these models shall be immediately commenced, as provided for in Article 2 of this agreement.

"Sixth.—In event of the entire failure of the aforesaid invention, and its abandonment by the parties to this covenant, it is mutually agreed that all the machinery, apparatus, &c., made since the date of this agreement, shall be the exclusive property of the said Vail.

"Seventh.—It is further agreed by the said party of the second part, that the letters-patent taken out for France, England, Scotland, and Ireland, in compliance with Article Fifth, shall be taken out in the name and for the exclusive benefit of said Morse, of the first part, and it is hereby agreed by the said party of the first part, that, as soon as he has obtained them, he shall immediately assign, transfer, and convey to the said party of the second part, one equal undivided one-half of all his interest and rights by said letters-patent secured to him.

In testimony whereof we have hereunto set our names and seals. In the presence of

"E. O. MARTIN,  
"SAMUEL F. B. MORSE,  
"ALFRED VAIL."

It may be well to state that Morse's invention, at this stage, consisted of a crude wooden apparatus (the foundation of which was an old picture frame,) involving a vocabulary of the words of the English language, and ten leaden types, having, upon the upper edges projections, either a single one, or others, up to five in number, or these numbers followed by space, the first five indicating from one to five, the second five indicating from six to ten. These

types being set up in what was termed a port-rule, and placed in the apparatus, were propelled under a projecting arm, which being in connection with the battery and the recording device, when in contact with the projections upon the types, or the reverse, closed or opened the circuit, and the magnet operating the recording armature, moving transversely across the moving band of paper, immediately beneath it, produced V-shaped points upon it.

#### HOW A MESSAGE WAS SENT.

To send a message, the following procedure was necessary: First, to examine the vocabulary, to ascertain the V points corresponding to the words of the message; second, to set up, in the port-rule, the requisite type; third, to send the message, which was done by starting the clockwork, which carried the paper under the recording pencil, and to turn the handle by which the port-rule was made to pass the types under the projecting wire; fourth, the consultation, by the recipient of the message, (at the other end of the wire), of the vocabulary to ascertain the significance of the V points as found upon the paper band. Comment upon the impracticability of such a laborious process is unnecessary.

Prof. Morse placed this apparatus in the hands of Alfred Vail, in accordance with the terms of their contract, as stated by Prof. Pope: "For an entire mechanical reconstruction throughout, to speak a new language, not only wholly unknown to his original apparatus, but to perform entirely new functions, and to produce an entirely new system of signs and letters, which the first structure was physically incapable of being made to speak."

And what was this wonderful improvement which gave to the world the system it uses to this day? It was the substitution to the recording pencil of a perpendicular movement for that of the transverse character before explained, and by means of which there was obtained upon the moving band a continuous straight mark, (instead of the V-shaped points of Morse's device), which was capable, by the elevation or depression of the pencil, of being broken into lines, dots, and spaces. This, then, was the origin of the dots and dashes, which, by consultation with the typesetters upon the Morristown newspaper, Alfred Vail utilized to represent the letters of the alphabet and the decimal numbers. Finding that the letter e was that most used, he assigned to it the most easily made character, a dot (.), and to the rest of the alphabet in their order of use, those most easily produced.

#### FIRST SUCCESSFUL TRIAL.

On the 6th of January, 1838, the first successful transmission of a message was made over a line three miles in length, consisting of copper bonnet wire, so-called because of its popularity with the ladies of the day, who used it to give expression to the fronts of their bonnets, of the genus "poke," then en vogue. The message, "A patient waiter is no loser," was written by Judge Vail and handed to his son Alfred, who transmitted it to Morse at the other end of the wire, whither the Judge at once went. Reading upon the paper handed him by Morse the very words he had just before given to his son, his emotion overcame him, and his doubts and fears, (which had become very pronounced as time had passed and he saw no satisfactory results following his disbursements,) now removed, his enthusiasm became as great as before had been his dejection.

On Jan. 11 a public exhibition was given, and on Jan. 20 the apparatus was exhibited at the University of New York. In February it was shown before the Franklin Institute in Philadelphia, and from there the two inventors carried the instruments to Washington, where they were installed at the Capitol, and experiments were made in the presence of the President and Congress, resulting in the introduction of a bill appropriating \$30,000 with which to erect a line between Washington and Baltimore, not, however, until more than five years later, a period full of trial, of hopes and fears to the inventors, that on the last night of the expiring session, March 3, 1843, the bill became a law.

#### CLAIM OF ALFRED VAIL.

The claims herein made for Alfred Vail will probably create surprise in the minds of many, for the world has been taught to believe that there was but one name connected with the invention of the telegraph. To such as care to know why this is the condition I would request their careful perusal of the third section of the contract between him and Morse, by the terms of which he was absolutely debarred from taking out patents in his own name, even for the independent creations of his own brain, and in support of his own feeling upon this point the following statement, written in his own hand and affixed to the original recording receiver, in which the paper was embossed with the dots and dashes, is offered in evidence:

"This lever and roller were invented by me in the sixth story of The New York Observer office in 1844, before we put up the telegraph line between Washington and Baltimore, and the same has been always used in Morse's instrument.

"I am the sole and only inventor of this mode of telegraph embossed writing. Prof. Morse gave me no clue to it, nor did any one else, and I have not asserted publicly any right, as first and sole inventor, because I wished to preserve the peaceful unity of the invention, and because could not, according to my contract with Prof. Morse, have got a patent for it.

#### "ALFRED VAIL."

Litigation with infringers of the patent extensively engaged the patentees from the moment the invention was an assured success, and these lawsuits had not terminated at the time of the death of Alfred Vail, on Jan. 19, 1859, at the age of fifty-two years. It needs no argument to show that no matter how much he had contributed to the success of the invention which bore another's name, prudence and interest required that he stifle the conviction, which had gradually come to him, that his identity was being eliminated from the invention by Morse. He passed from earth thirteen years before the death of Morse, who was his senior by some fifteen years.

In a pamphlet prepared by Morse in 1853, which was soon after reprinted by him in Paris, he wrote as follows:

#### A TRIBUTE FROM MORSE.

"Alfred Vail, being then (1837) a student in the University of the City of New York, and a young man of great ingenuity, having heard of my invention was naturally desirous of seeing it as it then existed in my rooms at the university. In the Summer of that year he came to my rooms and I explained it to him, and from that moment to the present (1853) he has taken the deepest interest in the telegraph.

"Finding that I was unable to command the means to bring my invention properly before the public, and believing that he could command these means through his father, he expressed this belief to me, and I at once made such an arrangement with him as to secure the pecuniary means and skill required. It is to their joint liberality, but especially to the attention and skill and faith in the final success of the enterprise maintained by Alfred Vail, that is due the success of my endeavors to bring the telegraph at that time creditably before the public.

"He was with me assisting me with its construction in its first exhibitions to the New York public in 1837, to the Franklin Institute in Philadelphia, and to Congress in 1838, and from his peculiar experience in all that relates to the invention was appointed my assistant superintendent on the passage of the telegraph bill in 1843."

By this bill Morse was made superintendent. Would it not have been more generous had Morse acknowledged the exact status of his devoted friend and partner, Alfred Vail?

STEPHEN VAIL.  
Washington, May 22, 1859.